

Hatfield Model Release 3.0 Inputs and Assumptions

Appendix B

calculated investment in digital switching in order to determine the monthly expense associated with digital switching. This value does not include software upgrades to the switch.

DEFAULT VALUE

2.69%

End office traffic-sensitive fraction

DEFINITION

The fraction of the total investment in digital switching that is assumed to be due to traffic-sensitive elements and is thus usage-sensitive. This value shows how much of the cost of an end office is associated with the line port as opposed to usage.

DEFAULT VALUE

70%

Alternative circuit equipment factor

DEFINITION

The expense to investment ratio for all circuit equipment (as categorized by LECs in their ARMIS reports), used as an alternative to the ARMIS expense ratio to reflect forward looking rather than embedded costs.

DEFAULT VALUE

0.0153

NID expense per line per year

DEFINITION

The estimated annual NID expense on a per line basis, based on an analysis of ARMIS data modified to reflect forward looking costs. This is for the NID only, not the drop wire, which is included in the ARMIS cable and wire account.

DEFAULT VALUE

\$1.00/line/year

Switch line circuit offset per DLC line

DEFINITION

The per-line amount of investment in circuit termination equipment that has been included in both the cost per line of digital switching and the cost per line of DLC equipment, and would therefore be double counted unless an adjustment were made.

DEFAULT VALUE

\$35.00

Ancillary Costs

Billing/bill inquiry per line per month

DEFINITION

The cost of bill generation and billing inquiries for end users, expressed as an amount per line per month.

DEFAULT VALUE

\$1.22

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Directory listing per line per month

DEFINITION

The monthly cost of creating and maintaining white pages listings on a per line, per month basis.

DEFAULT VALUE

\$0.15

Per-line monthly LNP cost

DEFINITION

The estimated cost of permanent Local Number Portability (LNP), expressed on a per-line, per-month basis, including the costs of implementing and maintaining the service. This is included in the USF calculations only, not the UNE rates, because it will be included in the definition of universal service once the service is implemented.

DEFAULT VALUE

\$0.25

Carrier-carrier customer service per line

DEFINITION

The yearly amount of customer operations expense associated with the provision of unbundled network elements by the LECs to carriers who purchase those elements.

DEFAULT VALUE

\$1.69

Hatfield Model Release 3.0 Inputs and Assumptions

Appendix B

Appendix

List of Acronyms

ADM	Add/Drop Multiplexer
BCM1	Benchmark Cost Model
CAP	Competitive Access Provider
CATV	Cable Television Operator
CB	Census Block
CBG	Census Block Group
D&B	Dun & Bradstreet
DLC	Digital Loop Carrier
EO	End Office
FSLIT	Federal, State and Local Income Tax
HAI	Hatfield Associates, Inc.
HM 2.2.2	Hatfield Model Release 2.2.2
HM R3	Hatfield Model Release 3
IXC	Interexchange Carrier
LEC	Local Exchange Carrier
LIDB	Line Information Database
LROPP	Long Range Outside Planning Process
MDF	Main Distributing Frame
NID	Network Interface Device
POP	Point of Presence
SAC	Serving Area Concept
SAI	Serving Area Interface
SCP	Service Control Point
SONET	Synchronous Optical Network
SS7	Signaling System 7
SSP	Service Switching Point
STP	Signal Transfer Point
TELRIC	Total Element Long Run Incremental Cost
UNE	Unbundled Network Element
USOA	Uniform System of Accounts

TAB 4

Hatfield Model Release 3.0

Automation Description and User Guide

Hatfield Model Release 3.0

Automation Description and User Guide

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

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5. ADJUSTING USER INPUTS AND MANAGING SCENARIOS
6. ADDITIONAL FEATURES

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

1. General Description

The Hatfield Model Release 3.0 calculates the cost of unbundled network elements (UNEs) and universal service funding (USF) requirements through the use of a highly sophisticated costing tool. The computer program chosen to support such a complicated analysis is Microsoft Excel 7.0. The model's calculations are contained in four Excel workbooks; these workbooks include the:

1. *Distribution Module*
2. *Feeder Module*
3. *Wire Center and Interoffice Module*, and the
4. *Expense Module*.

It is the belief of the Hatfield Model's developers and sponsors that a model developed in a readily understandable and ubiquitous spreadsheet program will permit detailed analysis of the Hatfield Model's calculations, algorithms, and user definable inputs. Moreover, the use of Microsoft Excel's auditing tools will allow the user to determine relationships among the Model's various inputs and outputs.

While Hatfield Model Release 3.0 remains a spreadsheet-based model, it uses two Microsoft programming languages -- Visual Basic (VB) and Visual Basic for Applications (VBA) -- and a database to integrate the Hatfield Model's four calculating modules. (See Model flowchart on the following page.) The use of programming code and macros allows the model to run with only limited user intervention as the programming code copies and pastes intermediate results and data among modules. Most importantly, the Hatfield Model no longer requires a "super-PC" to operate -- the recommended PC is a 133 MHz Pentium with 64Mb of RAM.

Hatfield Model Release 3.0 takes advantage of Microsoft's object oriented structure to enhance the model's speed and functionality. SQL database queries have removed the need for complex and time consuming data aggregation functions within Excel, permitting the model to calculate quickly and produce results at various levels of aggregation.

Specifically, two calculations are performed within the database. First, the database aggregates investment results from the CBG level to the Wire Center and Density Zone levels. Second, the database assigns switching and interoffice investments (which are developed on a per-line basis) to each CBG. In both cases the calculations are simple arithmetic, and can be externally verified by the user. Use of the database increases the efficiency of the model, but DOES NOT compromise the model's auditability.

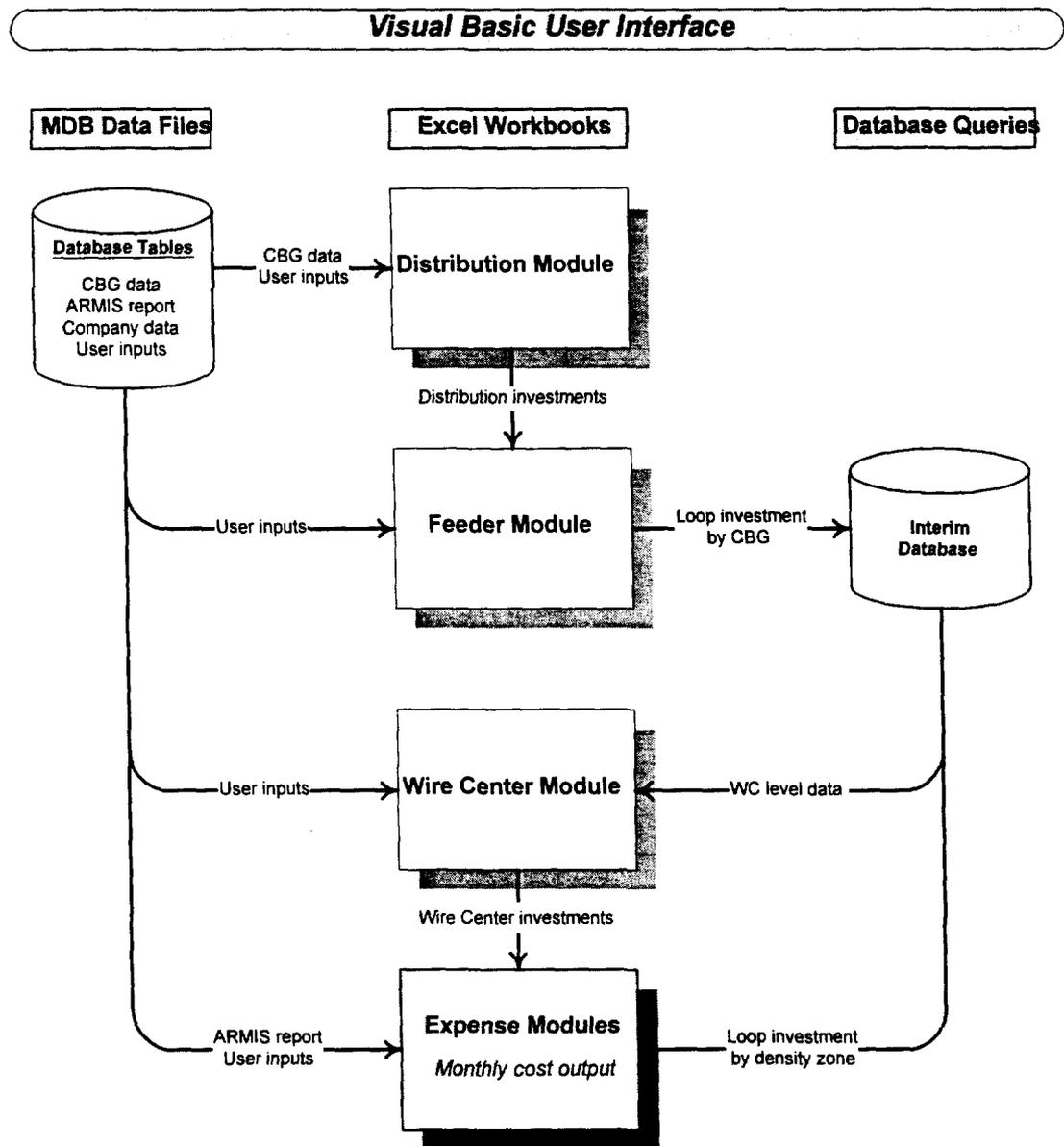
To further enhance the Model's auditability, a "workfile" is generated with each run to keep track of the intermediate results of each module. Using this workfile, the user can trace the development of investment results through each of the calculating modules.

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

HATFIELD MODEL 3.0

Module Flowchart



January 13, 1997

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

2. System Requirements

In order to run Hatfield Model Release 3.0, your PC should meet the following requirements:

- 133 MHz Pentium processor*
- 64 megabytes of RAM*
- 200 megabytes of available hard drive capacity
- Microsoft Windows NT or Windows 95* operating system
- Microsoft Excel Version 7.0

The items marked with an asterisk (*) are recommended requirements, and should be followed if the Model is to be used for large companies in large states (i.e., California, New York, or Texas). For smaller companies, the Model will function on a smaller PC.

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

3. Installation Instructions

Hatfield Model Release 3.0 ships as a single self-extracting installation file. In order to install your copy of the Hatfield Model 3.0 please follow these directions.

1. Ensure that your personal computer meets the system requirements described in Section 2.
2. Place the Hatfield Model 3.0 CD-ROM in your PC's CD-ROM drive.
3. Locate and click on the *File Manager* or *Windows Explorer* icon.
4. Click on the icon for your computer's CD-ROM drive.
5. Click on the Hatfield Model Release 3.0 installation icon. The model will run a self-extraction routine that will install the Model and all of its components on your computer's internal hard drive.
6. You are now ready to run the Hatfield Model Release 3.0.

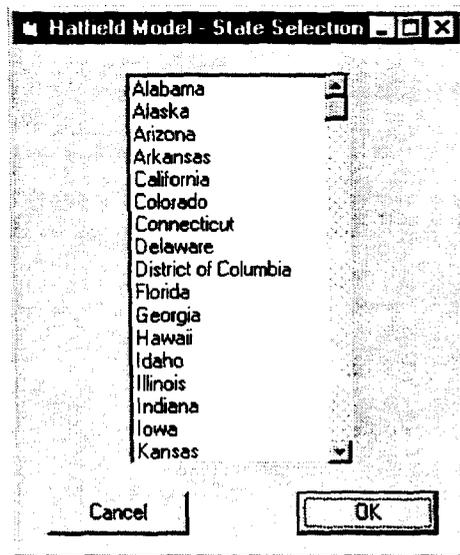
HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

4. Running the Model

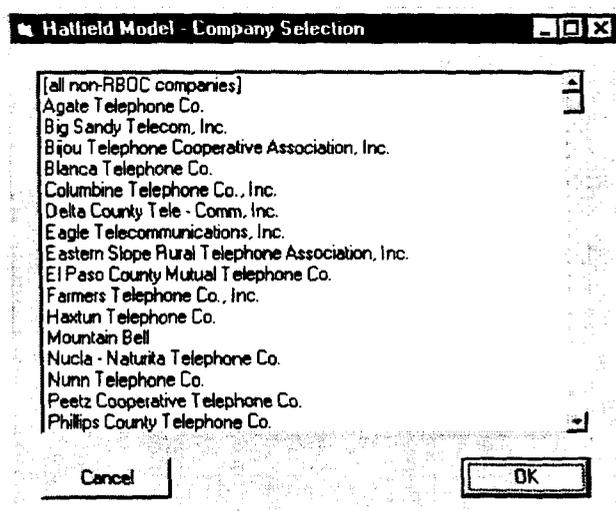
Select State

Running Hatfield Model Release 3.0 is very straightforward. To start the program, click on its icon on the Start Menu (in Windows 95), or the Hatfield Model program group (in Windows NT 3.51). A copyright message will appear, followed by the State Selection form. From this list, select the state you desire to run:



Select Company

After the State is selected, the Company Selection window will appear. This window will contain the names of all companies in the selected state for which Hatfield Model Release 3.0 contains data. Select the appropriate company from this list.

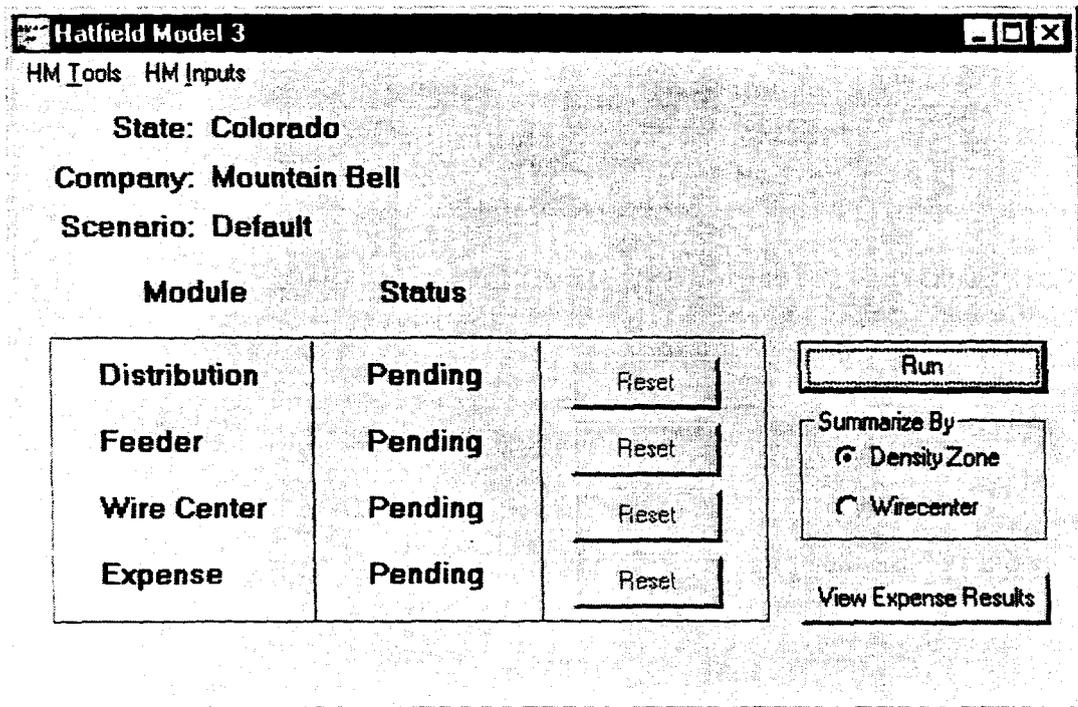


HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

Run the Model

After the desired state and company are selected, the main window will appear.



To run the Model using default user inputs, select either *Density Zone* or *Wirecenter* level outputs, by clicking on the appropriate button. Click **Run**. The Model will automatically calculate its four modules, then output results (in the Expense Module) in MS Excel.

As each of the modules is calculating, a status bar will display the progress of the calculations. As each module completes, the *Status* indicator will change from *Pending* to *Complete* to indicate that it has calculated successfully.

After a particular Company has been run once, subsequent runs will show the module Status as *Complete* for all modules. To re-run the model click the **Reset** button next to the module from which you would like to restart the Model. For example, to re-run the Expense Module, click **Reset** next to the Expense Module status indicator, and click **Run**.

Hatfield Model Release 3.0 results can be summarized either by *Density Zone* or by *Wire Center*. Click on the desired option on the main window before clicking **Run**. To see both outputs, run the Model by *Density Zone* and save the results. Next, click the *Wirecenter* option on the main window, click **Reset** next to the Expense module, and click **Run**. The Wire Center outputs will be displayed.

To run the model with customized user inputs, see Section 5.

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

5. Adjusting User Inputs and Managing Scenarios

Hatfield Model Release 3.0 has hundreds of user adjustable inputs. The Model has input boxes which allow these inputs to be changed easily, and provides a scenario manager to allow users to keep track of various sets of input parameters.

The *Default scenario* in Hatfield Model Release 3.0 cannot be changed, so a new scenario must be created before input values can be changed. To create a new scenario, select **New HM Scenario** from the **HM Tools** menu. The following input box will appear, prompting for a scenario name. The scenario can have any name up to 100 characters long.

Enter a brief description of this scenario for: **Colorado - Mountain Bell**

Sensitivity analysis - Scenario 1

Cancel OK

To change a user input, click on **HM Inputs**, then select the appropriate category and sub-category of inputs. An input box will appear:

Residential NID materials, no protector	\$10.00
Residential NID Basic Labor	\$15.00
Residential Max Lines per NID	6
Residential Protection Block, per pair	\$4.00
Business NID case, no protector	\$25.00
Business NID Basic Labor	\$15.00
Business Protection Block, per pair	\$4.00

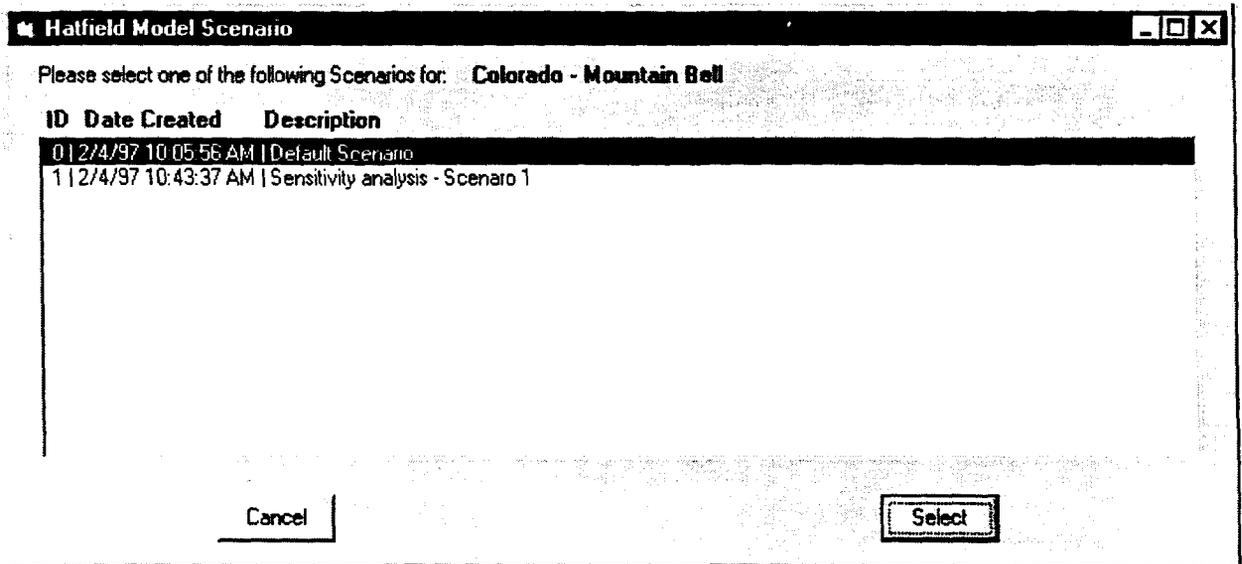
Cancel Reset Defaults OK

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

Inputs can be changed by simply typing new values in the spaces provided. Clicking **OK** will register the input change, clicking **Reset Defaults** will return each item to its original value, and clicking **Cancel** will close the input box without registering any changes.

To return to a previously created scenario, choose Open HM Scenario from the HM Tools menu. The following selection box will appear, prompting the user to choose a scenario.



Up to 99 different scenarios can be stored in the Model for each company. However, each scenario represents hundreds of input values, so the scenario database could become quite large. Scenarios can be deleted when they are no longer needed by selecting **Delete HM Scenario** from the **HM Tools** menu. A selection box will appear which allows scenarios to be deleted.

HATFIELD MODEL RELEASE 3.0

MODEL INTERFACE AND AUTOMATION DESCRIPTION

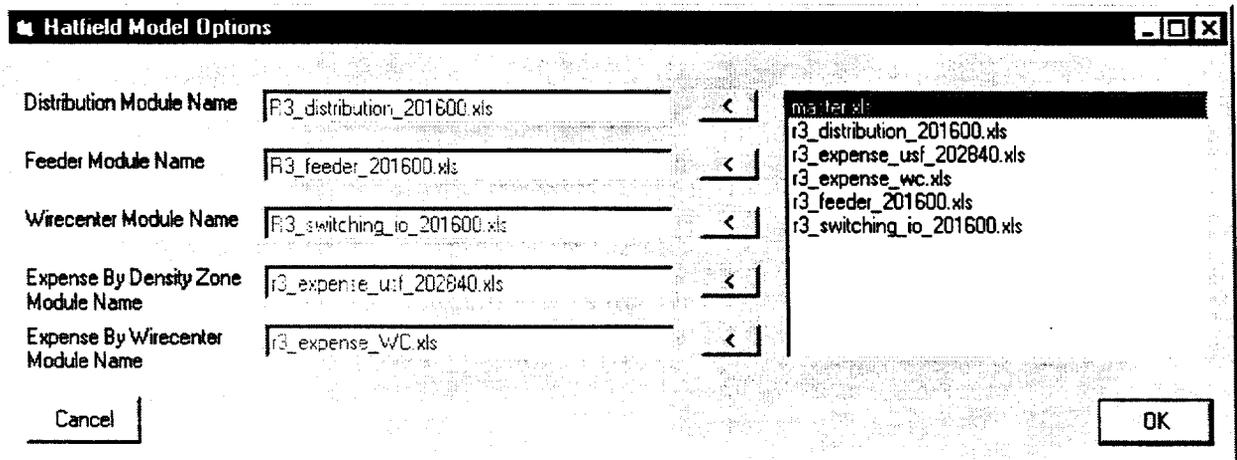
6. Additional Features

Changing Modules

Should it ever become necessary to replace or update the modules that comprise Hatfield Model Release 3.0, the Model provides a mechanism to do so.

First, copy the new modules from CD or diskette into the Hatfield Model Release 3.0 Modules directory. (The default path will be *c:\program files\hm30\modules* under Windows 95 and *c:\hm30\modules* under Windows NT 3.51.)

Next, select *Options* from the *HM Tools* menu. The following selection box will appear:



The right side of the selection box will show all the files that reside in the Modules directory. Select the new module from the list on the right, then click the appropriate button to send the module name to the box on the left. The module names listed on the left side of the form are the calculating modules used by the Model.

Deleting Scenario Workfiles

On certain system configurations, Hatfield Model Release 3.0 can run up against the memory limitations of Microsoft Excel 7.0. This generally happens when running very large companies with completed workfiles (i.e., running Pacific Bell subsequent to its initial run). If an Out of Memory error occurs when running a large company, click the *Delete Scenario Workfile* option on the *HM Tools* menu. This will delete the workfile (requiring the run to start from the *Distribution Module*), but should free up the required amount of memory.

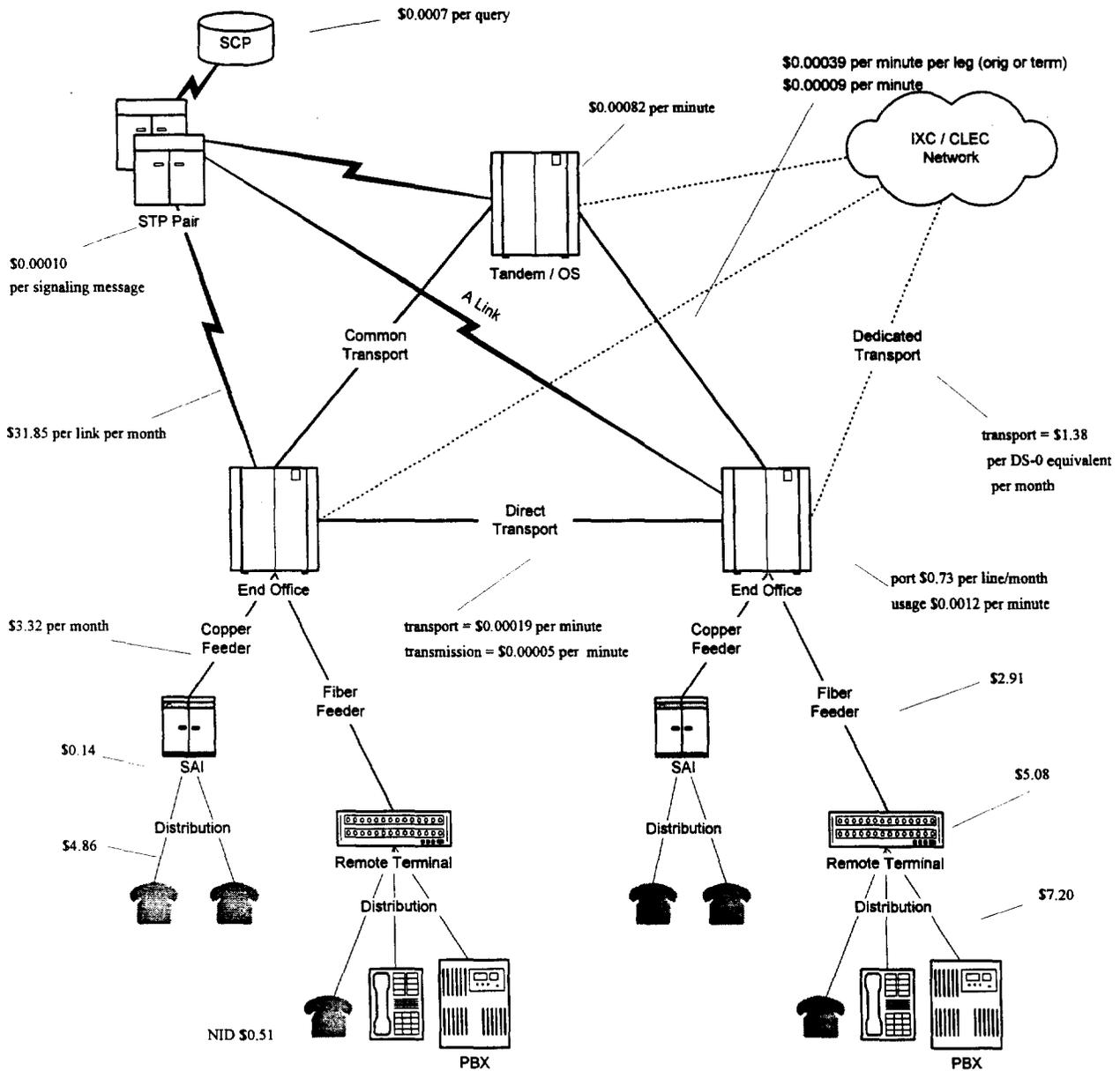
TAB 5

Hatfield Model Release 3.0

State Runs- Texas

UNE Network Elements

Texas / Southwestern Bell



Basic Local Service - monthly cost per line

**Texas
Southwestern Bell**

	0 - 5 lines/sq mi	5 - 100 lines/sq mi	100 - 200 lines/sq mi	200 - 650 lines/sq mi	650 - 850 lines/sq mi	850 - 2,550 lines/sq mi	2,550 - 5,000 lines/sq mi	5,000 - 10,000 lines/sq mi	> 10,000 lines/sq mi	Weighted Average
Network costs										
Loop	\$ 84.50	\$ 33.55	\$ 22.40	\$ 17.38	\$ 14.92	\$ 12.33	\$ 10.86	\$ 9.24	\$ 7.59	\$ 14.83
Port	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
End office usage	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Signaling	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Transport	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Billing/bill inquiries	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44	\$ 1.44
Directory listing	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
LNP expense (when available)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Total monthly cost per line (assumes LNP available)	\$ 88.61	\$ 37.66	\$ 26.51	\$ 21.49	\$ 19.03	\$ 16.44	\$ 14.97	\$ 13.35	\$ 11.69	\$ 18.94
Total switched lines	62,953	506,147	225,010	660,469	235,252	2,267,768	2,362,254	1,020,609	723,733	wtd by hh 8,064,196
Total households	60,041	401,356	160,978	434,734	153,889	1,500,023	1,497,272	532,627	189,548	4,930,488
Total single line business										-
Annual Support @ \$30.00	\$ 42,227,185	\$ 36,905,630	0	0	0	0	0	0	0	\$ 79,132,815

Annual Support Benchmarks at Pre-Selected Monthly Benchmarks (wtd by hh)

\$20.00	\$ 49,432,105	\$ 85,068,350	\$ 12,567,488	\$ 7,748,610	0	0	0	0	0	\$ 154,816,553
\$30.00	42,227,185	36,905,630	0	0	0	0	0	0	0	79,132,815
\$40.00	35,022,265	0	0	0	0	0	0	0	0	35,022,265
\$50.00	27,817,345	0	0	0	0	0	0	0	0	27,817,345
\$60.00	20,612,425	0	0	0	0	0	0	0	0	20,612,425
\$70.00	13,407,505	0	0	0	0	0	0	0	0	13,407,505
\$80.00	6,202,585	0	0	0	0	0	0	0	0	6,202,585

Module release date: 2/5/97

Assumed direct monthly per-line costs:

billing/bill inquiries	\$ 1.22
directory listing	\$ 0.15
local number portability	\$ 0.25

COST OF NETWORK ELEMENTS

Texas
Southwestern Bell

Loop elements	0-5 lines/sq mi	5-100 lines/sq mi	100-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-5000 lines/sq mi	5000-10000 lines/sq mi	>10000 lines/sq mi	Totals
NID										
Annual Cost	\$ 476,944	\$ 3,619,464	\$ 1,595,555	\$ 4,647,795	\$ 1,664,963	\$ 16,360,471	\$ 17,102,305	\$ 7,294,936	\$ 4,762,905	\$ 57,525,338
Unit Cost/month	0.62	0.55	0.53	0.51	0.52	0.53	0.52	0.49	0.40	0.51
Loop Distribution (DLC)										
Annual Cost	\$ 14,732,450	\$ 105,252,910	\$ 38,726,643	\$ 79,896,693	\$ 20,665,679	\$ 133,585,662	\$ 102,259,603	\$ 34,857,830	\$ 17,990,899	\$ 547,968,367
Unit Cost/month	19.55	16.32	13.65	10.36	8.36	6.29	4.88	4.09	3.52	7.20
Loop Distribution (non-DLC)										
Annual Cost	\$ 616,940	\$ 1,577,328	\$ 2,331,446	\$ 12,640,140	\$ 5,656,018	\$ 55,943,343	\$ 52,449,235	\$ 25,496,646	\$ 22,151,303	\$ 178,862,398
Unit Cost/month	37.32	16.61	13.21	9.34	7.53	5.77	4.50	3.99	3.33	4.86
Loop Distribution (all)										
Annual Cost	\$ 15,349,390	\$ 106,830,238	\$ 41,058,088	\$ 92,536,832	\$ 26,321,697	\$ 189,529,005	\$ 154,708,838	\$ 60,354,476	\$ 40,142,201	\$ 726,830,765
Unit Cost/month	19.93	16.33	13.62	10.21	8.16	6.13	4.74	4.04	3.41	6.44
Loop Concentration (DLC)										
Annual Cost	\$ 6,634,557	\$ 49,585,986	\$ 16,178,935	\$ 39,046,252	\$ 12,663,981	\$ 100,868,527	\$ 103,435,026	\$ 36,828,500	\$ 21,204,192	\$ 386,445,956
Unit Cost/month	8.80	7.69	5.70	5.06	5.12	4.75	4.93	4.32	4.15	5.08
Loop Concentration (non-DLC)										
Annual Cost	\$ 17,173	\$ 35,663	\$ 39,408	\$ 268,294	\$ 137,173	\$ 1,650,554	\$ 1,751,610	\$ 764,973	\$ 395,946	\$ 5,060,793
Unit Cost/month	1.04	0.38	0.22	0.20	0.18	0.17	0.15	0.12	0.06	0.14
Loop Concentration (all)										
Annual Cost	\$ 6,651,730	\$ 49,621,649	\$ 16,218,342	\$ 39,314,546	\$ 12,801,154	\$ 102,519,081	\$ 105,186,636	\$ 37,593,473	\$ 21,600,138	\$ 391,506,749
Unit Cost/month	8.64	7.58	5.38	4.34	3.97	3.31	3.22	2.52	1.84	3.47
Loop Feeder (DLC)										
Annual Cost	\$ 38,644,652	\$ 58,330,048	\$ 7,975,201	\$ 15,381,960	\$ 4,449,987	\$ 39,375,505	\$ 37,198,084	\$ 13,040,675	\$ 6,633,073	\$ 221,029,184
Unit Cost/month	51.28	9.05	2.81	2.00	1.80	1.85	1.77	1.53	1.30	2.91
Loop Feeder (non-DLC)										
Annual Cost	\$ 3,889,681	\$ 920,020	\$ 603,111	\$ 5,456,446	\$ 2,808,809	\$ 33,244,523	\$ 39,729,980	\$ 19,542,277	\$ 15,996,103	\$ 122,190,950
Unit Cost/month	235.27	9.69	3.42	4.03	3.74	3.43	3.41	3.06	2.41	3.32
Loop Feeder (all)										
Annual Cost	\$ 42,534,333	\$ 59,250,068	\$ 8,578,311	\$ 20,838,406	\$ 7,258,796	\$ 72,620,028	\$ 76,928,064	\$ 32,582,952	\$ 22,829,177	\$ 343,220,134
Unit Cost/month	55.23	9.06	2.85	2.30	2.25	2.35	2.36	2.18	1.92	3.04
Total Loop (DLC)										
Annual Cost	\$ 60,478,363	\$ 216,735,879	\$ 64,382,906	\$ 138,278,653	\$ 39,056,582	\$ 285,059,702	\$ 253,880,714	\$ 88,896,867	\$ 47,899,230	\$ 1,194,668,896
Unit Cost/month	80.25	33.61	22.69	17.94	15.80	13.43	12.11	10.42	9.37	15.71
Total Loop (non-DLC)										
Annual Cost	\$ 4,534,033	\$ 2,585,540	\$ 3,067,390	\$ 19,058,926	\$ 8,990,028	\$ 95,968,883	\$ 100,045,129	\$ 48,928,970	\$ 41,235,191	\$ 324,414,090
Unit Cost/month	274.24	27.23	17.38	14.08	11.97	9.89	8.58	7.65	6.20	8.82
Total Loop (all)										
Annual Cost	\$ 65,012,396	\$ 219,321,418	\$ 67,450,297	\$ 157,337,578	\$ 48,046,610	\$ 381,028,584	\$ 353,925,843	\$ 137,825,837	\$ 89,134,422	\$ 1,519,082,985
Unit Cost/month	84.42	33.52	22.38	17.36	14.90	12.32	10.85	9.24	7.58	13.46
Total lines	64,177	545,219	251,200	755,247	268,654	2,577,647	2,719,152	1,243,674	980,037	9,405,008
Total lines served by DLC	62,799	537,306	236,491	642,468	206,043	1,769,326	1,747,019	710,897	428,152	6,338,501

	Annual Cost	Units	Unit Cost
End office switching	\$ 235,876,047		
Port	70,762,814	8,064,196 switched lines	\$ 0.73 per line/month
Usage	165,113,233	142,877,494,078 minutes	\$ 0.0012 per minute
Signaling network elements	\$ 22,953,720		
Links	1,090,023	2,852 links	\$ 31.85 per link per month
STP	15,954,554	154,539,876,988 TCAP+ISUP msgs	\$ 0.00010 per signaling message
SCP	5,909,143	8,160,024,000 TCAP queries	\$ 0.00072 per query
Transport network elements			
<i>Dedicated</i>			
Sw+Sp Transport	\$ 25,713,377	1,555,963 trunks	\$ 1.38 per DS-0 equivalent per month
Switched	3,555,514	215,151 trunks	\$ 0.00014 per minute
Special	22,157,863	1,340,812 trunks	
Transmission Terminal	27,728,209	1,555,963 trunks	\$ 1.48 per DS-0 equivalent/month
			\$ 0.00015 per minute
			\$ 0.00028 total per minute
<i>Common</i>			
Transport	\$ 3,383,123	8,814,663,842 minutes	\$ 0.00039 per minute per leg (orig or term)
Transmission Terminal	744,445	8,814,663,842 minutes	\$ 0.00009 per minute
			\$ 0.00048 total per minute
<i>Direct</i>			
Transport	\$ 13,672,145	71,096,624,162 minutes	\$ 0.00019 per minute
Transmission Terminal	3,313,937	71,096,624,162 minutes	\$ 0.00005 per minute
			\$ 0.00024 total per minute
Tandem switch	\$ 6,331,516	7,730,329,952 minutes	\$ 0.00082 per minute
Operator systems	\$ 39,779,459		
Public Telephones	\$ 36,010,834		
Total (w/ Public)	\$ 1,934,587,797		
Total cost of switched network elements (w/o Public)	\$ 16.91	per line/month	

NETWORK-RELATED EXPENSES (Summary)

Texas
Southwestern Bell

Network Element	Investment *	% of total investment	1	2	1 + 2	3	1 + 2 + 3	Subtotal (with misc support)	Total (with carrier-to-carrier)
			Annual Capital Cost	Network Expenses	Direct Expense	Support Expense			
NID	\$ 204,033,848	3.0%	\$ 34,463,435	\$ 5,581,976	\$ 40,045,411	\$ 11,452,125	\$ 51,497,536	\$ 57,367,371	
<i>Distribution (DLC)</i>	1,884,967,633	27.5%	279,907,623	109,327,077	389,234,700	102,179,944	491,414,644	547,427,487	
<i>Distribution (non-DLC)</i>	599,979,504	8.8%	89,818,741	33,771,259	123,590,000	36,426,967	160,016,966	178,256,156	
Distribution (all)	2,484,947,138	36.2%	369,726,364	143,098,336	512,824,700	138,606,910	651,431,610	725,683,643	
<i>Concentrator (DLC)</i>	1,373,551,645	20.0%	250,395,581	21,114,153	271,509,734	74,720,320	346,230,054	385,694,343	
<i>Concentrator (non-DLC)</i>	18,738,513	0.3%	3,165,129	332,334	3,497,464	1,030,202	4,527,665	5,043,742	
Concentrator (all)	1,392,290,158	20.3%	253,560,710	21,446,488	275,007,198	75,750,522	350,757,719	390,738,084	
<i>Feeder (DLC)</i>	915,252,209	13.3%	127,812,719	31,511,909	159,324,627	39,156,307	198,480,935	221,104,357	
<i>Feeder (non-DLC)</i>	486,253,070	7.1%	69,500,052	14,931,452	84,431,505	24,885,752	109,317,256	121,777,549	
Feeder (all)	1,401,505,279	20.4%	197,312,771	46,443,361	243,756,132	64,042,059	307,798,191	342,881,906	
End Office Switching	877,760,236	12.8%	130,839,259	33,583,147	164,422,407	46,946,919	211,369,326	235,461,804	
Signaling	88,827,577	1.3%	13,244,710	2,784,853	16,029,563	4,539,344	20,568,906	22,913,409	
Dedicated Transport	104,972,099	1.5%	14,649,905	3,970,776	18,620,681	4,421,163	23,041,844	25,668,219	
Dedicated Transport Transmission	97,718,823	1.4%	17,853,757	1,495,098	19,348,855	5,496,695	24,845,550	27,677,516	
Direct Transport	57,263,145	0.8%	7,995,560	2,041,105	10,036,665	2,214,990	12,251,656	13,648,134	
Direct Transport Transmission	11,799,714	0.2%	2,155,872	180,536	2,336,407	633,223	2,969,630	3,308,117	
Common Transport	14,203,283	0.2%	1,982,784	506,732	2,489,516	542,112	3,031,628	3,377,182	
Common Transport Transmission	2,655,512	0.0%	485,176	40,629	525,806	141,294	667,100	743,138	
Tandem Switching	21,090,794	0.3%	2,950,462	1,457,068	4,407,530	1,266,163	5,673,693	6,320,397	
Operator Systems	27,576,322	0.4%	5,393,699	22,366,911	27,760,610	7,885,898	35,646,508	39,709,599	
Public Telephone	69,990,065	1.0%	14,426,245	10,543,780	24,970,025	7,356,176	32,326,201	36,010,834	
Total Network Cost									
Total	\$ 6,856,633,992	100%	\$1,067,040,709	\$ 295,540,795	\$1,362,581,504	\$ 371,295,594	\$1,733,877,098	\$1,931,509,354	

* Post sharing

Network-Related Expenses	0-5	5-100	100-200	200-650	650-850	850-2550	2550-5000	5000-10000	>10000	Totals
	lines/sq mi									
NID										
Annual Capital Cost	\$ 303,567	\$ 2,275,657	\$ 991,951	\$ 2,861,708	\$ 1,013,560	\$ 9,759,965	\$ 10,100,760	\$ 4,301,998	\$ 2,854,252	\$ 34,483,435
Network Expenses	\$ 80,838	\$ 420,350	\$ 173,717	\$ 480,848	\$ 170,217	\$ 1,650,538	\$ 1,870,820	\$ 641,000	\$ 313,838	\$ 5,581,978
Direct expense	\$ 364,205	\$ 2,896,007	\$ 1,185,868	\$ 3,342,554	\$ 1,183,778	\$ 11,410,523	\$ 11,771,579	\$ 4,943,007	\$ 3,168,090	\$ 40,045,411
Investment	\$ 1,797,209	\$ 13,472,571	\$ 5,872,645	\$ 16,942,155	\$ 6,000,581	\$ 57,782,029	\$ 59,799,520	\$ 25,469,115	\$ 10,898,023	\$ 204,033,848
Support expenses	\$ 66,396	\$ 563,883	\$ 268,779	\$ 829,924	\$ 309,404	\$ 3,237,977	\$ 3,524,312	\$ 1,572,432	\$ 1,079,019	\$ 11,452,125
Subtotal, with misc spt	\$ 430,601	\$ 3,259,890	\$ 1,434,446	\$ 4,172,478	\$ 1,493,182	\$ 14,648,499	\$ 15,295,891	\$ 6,515,439	\$ 4,247,100	\$ 51,497,536
Total, with var overhead	\$ 475,384	\$ 3,598,916	\$ 1,583,829	\$ 4,606,416	\$ 1,848,473	\$ 16,171,943	\$ 16,886,664	\$ 7,193,045	\$ 4,688,606	\$ 56,853,279
with carrier-to-carrier	\$ 476,108	\$ 3,613,108	\$ 1,592,753	\$ 4,639,632	\$ 1,862,039	\$ 16,331,739	\$ 17,072,270	\$ 7,282,125	\$ 4,754,541	\$ 57,367,371
Distribution (DLC)										
Annual Capital Cost	\$ 6,259,184	\$ 55,943,371	\$ 19,933,997	\$ 40,368,177	\$ 10,373,703	\$ 87,733,347	\$ 51,919,294	\$ 17,008,513	\$ 8,370,038	\$ 279,907,623
Network Expenses	\$ 2,990,850	\$ 22,455,893	\$ 8,358,805	\$ 17,091,121	\$ 4,319,458	\$ 25,435,258	\$ 18,466,368	\$ 6,812,952	\$ 3,598,774	\$ 108,327,077
Direct expense	\$ 11,250,034	\$ 78,399,064	\$ 28,292,603	\$ 57,459,299	\$ 14,693,161	\$ 93,168,605	\$ 70,385,660	\$ 23,819,485	\$ 11,968,610	\$ 389,234,700
Investment	\$ 56,028,592	\$ 378,876,232	\$ 135,882,755	\$ 273,796,597	\$ 70,058,444	\$ 454,852,746	\$ 347,325,630	\$ 112,864,165	\$ 55,303,273	\$ 1,884,967,633
Support expenses	\$ 2,050,929	\$ 18,397,543	\$ 6,523,682	\$ 14,266,584	\$ 3,840,354	\$ 26,438,558	\$ 21,072,874	\$ 7,513,647	\$ 4,075,773	\$ 102,179,944
Subtotal, with misc spt	\$ 13,300,963	\$ 94,798,607	\$ 34,816,265	\$ 71,725,883	\$ 18,533,515	\$ 119,607,183	\$ 91,458,533	\$ 31,133,112	\$ 16,042,583	\$ 491,414,644
Total, with var overhead	\$ 14,884,264	\$ 104,655,454	\$ 38,437,179	\$ 79,185,375	\$ 20,481,000	\$ 132,046,306	\$ 100,970,221	\$ 34,370,956	\$ 17,711,012	\$ 542,521,767
with carrier-to-carrier	\$ 14,706,577	\$ 105,068,066	\$ 38,658,631	\$ 79,756,379	\$ 20,629,386	\$ 133,351,061	\$ 102,080,016	\$ 34,796,613	\$ 17,959,303	\$ 547,427,467
Distribution (non-DLC)										
Annual Capital Cost	\$ 344,763	\$ 842,336	\$ 1,210,382	\$ 6,446,318	\$ 2,869,579	\$ 28,548,604	\$ 26,901,903	\$ 12,453,178	\$ 10,201,679	\$ 89,818,741
Network Expenses	\$ 128,346	\$ 332,559	\$ 492,907	\$ 2,644,091	\$ 1,151,813	\$ 10,468,781	\$ 9,199,096	\$ 4,823,204	\$ 4,532,461	\$ 33,771,250
Direct expense	\$ 471,109	\$ 1,174,894	\$ 1,703,289	\$ 9,090,406	\$ 4,021,391	\$ 39,017,385	\$ 36,101,001	\$ 17,278,381	\$ 14,734,140	\$ 123,590,000
Investment	\$ 2,351,619	\$ 5,706,571	\$ 8,247,410	\$ 43,671,061	\$ 19,349,062	\$ 191,360,857	\$ 179,825,354	\$ 82,588,470	\$ 67,079,160	\$ 599,979,504
Support expenses	\$ 85,885	\$ 243,735	\$ 302,743	\$ 2,257,060	\$ 1,051,072	\$ 11,072,006	\$ 10,808,336	\$ 5,495,832	\$ 5,018,298	\$ 36,426,967
Subtotal, with misc spt	\$ 558,994	\$ 1,420,829	\$ 2,096,032	\$ 11,347,468	\$ 5,072,463	\$ 50,089,392	\$ 46,909,337	\$ 22,772,214	\$ 22,140,524	\$ 160,016,969
Total, with var overhead	\$ 614,922	\$ 1,568,375	\$ 2,314,019	\$ 12,527,805	\$ 5,599,999	\$ 55,298,688	\$ 51,787,906	\$ 25,140,524	\$ 21,806,691	\$ 176,858,731
with carrier-to-carrier	\$ 615,856	\$ 1,574,558	\$ 2,327,351	\$ 12,617,941	\$ 5,646,085	\$ 55,845,096	\$ 52,357,124	\$ 25,451,869	\$ 22,112,401	\$ 178,256,158
Distribution (all)										
Annual Capital Cost	\$ 6,603,947	\$ 56,785,707	\$ 21,144,380	\$ 46,814,495	\$ 13,243,281	\$ 98,281,952	\$ 78,821,197	\$ 29,459,691	\$ 18,571,715	\$ 369,726,364
Network Expenses	\$ 3,117,196	\$ 22,788,251	\$ 8,851,512	\$ 19,735,212	\$ 5,471,271	\$ 35,904,039	\$ 27,865,464	\$ 11,436,156	\$ 8,129,235	\$ 143,098,338
Direct expense	\$ 11,721,143	\$ 79,573,958	\$ 29,995,892	\$ 66,549,707	\$ 18,714,552	\$ 132,185,991	\$ 106,486,661	\$ 52,095,184	\$ 26,700,950	\$ 512,824,700
Investment	\$ 58,378,211	\$ 384,582,803	\$ 144,110,166	\$ 317,487,877	\$ 89,408,526	\$ 646,213,603	\$ 526,951,184	\$ 195,452,635	\$ 122,382,333	\$ 2,484,947,138
Support expenses	\$ 2,136,815	\$ 16,643,277	\$ 6,916,425	\$ 16,523,844	\$ 4,891,426	\$ 48,912,564	\$ 41,881,210	\$ 21,315,096	\$ 13,009,479	\$ 138,606,910
Subtotal, with misc spt	\$ 13,857,958	\$ 96,217,236	\$ 36,912,317	\$ 83,073,351	\$ 23,605,878	\$ 169,696,555	\$ 138,367,870	\$ 53,905,325	\$ 35,795,021	\$ 651,431,810
Total, with var overhead	\$ 15,299,185	\$ 106,223,626	\$ 40,751,196	\$ 91,712,980	\$ 26,080,999	\$ 187,344,996	\$ 152,758,129	\$ 59,511,479	\$ 39,517,703	\$ 719,180,498
with carrier-to-carrier	\$ 15,322,433	\$ 106,642,624	\$ 40,985,983	\$ 92,374,320	\$ 26,275,471	\$ 189,196,157	\$ 154,437,140	\$ 60,248,462	\$ 40,071,704	\$ 725,683,643
Concentrator (DLC)										
Annual Capital Cost	\$ 4,672,175	\$ 34,065,543	\$ 10,900,284	\$ 25,895,545	\$ 8,303,721	\$ 84,874,478	\$ 65,858,932	\$ 23,015,242	\$ 13,009,669	\$ 250,395,561
Network Expenses	\$ 394,124	\$ 2,969,243	\$ 919,613	\$ 2,185,345	\$ 700,266	\$ 5,475,736	\$ 5,535,775	\$ 1,899,538	\$ 1,094,492	\$ 21,114,153
Direct expense	\$ 5,086,299	\$ 36,934,797	\$ 11,819,876	\$ 28,080,890	\$ 9,004,007	\$ 70,350,214	\$ 71,194,708	\$ 24,954,760	\$ 14,104,161	\$ 271,509,734
Investment	\$ 25,832,525	\$ 186,798,679	\$ 59,803,536	\$ 142,087,509	\$ 45,552,173	\$ 355,962,418	\$ 380,157,110	\$ 126,225,907	\$ 71,311,788	\$ 1,373,551,645
Support expenses	\$ 923,608	\$ 7,725,091	\$ 2,725,417	\$ 6,972,212	\$ 2,353,379	\$ 19,963,358	\$ 21,315,096	\$ 7,938,427	\$ 4,803,733	\$ 74,720,320
Subtotal, with misc spt	\$ 5,969,907	\$ 44,659,888	\$ 14,545,294	\$ 35,053,102	\$ 11,357,386	\$ 90,313,572	\$ 82,509,804	\$ 32,893,207	\$ 18,907,694	\$ 348,230,054
Total, with var overhead	\$ 6,812,857	\$ 49,304,517	\$ 16,058,005	\$ 38,896,625	\$ 12,536,554	\$ 99,708,183	\$ 102,130,823	\$ 36,314,101	\$ 20,874,315	\$ 382,237,980
with carrier-to-carrier	\$ 6,822,908	\$ 49,498,904	\$ 16,150,522	\$ 39,977,680	\$ 12,641,741	\$ 100,691,383	\$ 103,253,375	\$ 36,763,822	\$ 21,168,953	\$ 385,694,343
Concentrator (non-DLC)										
Annual Capital Cost	\$ 11,868	\$ 24,040	\$ 26,054	\$ 174,814	\$ 88,261	\$ 1,041,784	\$ 1,091,078	\$ 469,088	\$ 238,342	\$ 3,165,129
Network Expenses	\$ 1,246	\$ 2,524	\$ 2,736	\$ 18,334	\$ 9,267	\$ 109,396	\$ 114,562	\$ 49,254	\$ 25,026	\$ 332,334
Direct expense	\$ 13,114	\$ 26,564	\$ 28,790	\$ 192,949	\$ 97,529	\$ 1,151,170	\$ 1,205,840	\$ 518,341	\$ 263,367	\$ 3,497,464
Investment	\$ 70,280	\$ 142,322	\$ 154,250	\$ 1,033,770	\$ 522,534	\$ 6,187,674	\$ 6,459,506	\$ 2,777,140	\$ 1,411,055	\$ 18,738,513
Support expenses	\$ 2,391	\$ 5,556	\$ 4,907	\$ 47,907	\$ 25,491	\$ 326,869	\$ 360,956	\$ 164,891	\$ 89,700	\$ 1,030,202
Subtotal, with misc spt	\$ 15,504	\$ 32,120	\$ 35,429	\$ 240,856	\$ 123,020	\$ 1,477,839	\$ 1,568,596	\$ 683,232	\$ 353,089	\$ 4,527,066
Total, with var overhead	\$ 17,117	\$ 35,460	\$ 39,113	\$ 265,905	\$ 135,814	\$ 1,831,534	\$ 1,729,524	\$ 754,288	\$ 389,787	\$ 4,998,543
with carrier-to-carrier	\$ 17,143	\$ 35,800	\$ 39,338	\$ 267,823	\$ 136,932	\$ 1,847,655	\$ 1,748,534	\$ 763,630	\$ 395,251	\$ 5,043,742
Concentrator (all)										
Annual Capital Cost	\$ 4,684,042	\$ 34,089,594	\$ 10,926,319	\$ 26,070,160	\$ 8,391,982	\$ 85,916,262	\$ 66,750,010	\$ 23,484,330	\$ 13,248,011	\$ 253,560,710
Network Expenses	\$ 395,370	\$ 2,671,767	\$ 922,349	\$ 2,203,679	\$ 709,533	\$ 5,585,122	\$ 5,850,337	\$ 1,989,792	\$ 1,110,517	\$ 21,446,488
Direct expense	\$ 5,079,413	\$ 36,961,361	\$ 11,848,688	\$ 28,273,639	\$ 9,101,535	\$ 71,501,384	\$ 72,400,347	\$ 25,473,122	\$ 14,367,528	\$ 275,007,198
Investment	\$ 25,702,785	\$ 186,941,001	\$ 59,957,786	\$ 143,121,279	\$ 46,074,707	\$ 362,150,992	\$ 366,816,618	\$ 129,003,047	\$ 72,722,843	\$ 1,392,290,158
Support expenses	\$ 925,999	\$ 7,730,647	\$ 2,732,055	\$ 7,020,119	\$ 2,376,870	\$ 20,290,026	\$ 21,876,054	\$ 8,103,318	\$ 4,893,433	\$ 75,750,522
Subtotal, with misc spt	\$ 6,005,411	\$ 44,692,008	\$ 14,580,723	\$ 35,293,958	\$ 11,480,405	\$ 91,791,411	\$ 94,076,402	\$ 33,576,439	\$ 19,260,962	\$ 350,757,719
Total, with var overhead	\$ 6,629,974	\$ 49,339,977	\$ 16,097,116	\$ 38,984,530	\$ 12,674,368	\$ 101,337,717	\$ 103,860,348	\$ 37,066,369	\$ 21,264,102	\$ 387,236,522
with carrier-to-carrier	\$ 6,640,049	\$ 49,534,504	\$ 16,189,860	\$ 39,245,502	\$ 12,778,673	\$ 102,339,038	\$ 105,001,909	\$ 37,527,452	\$ 21,562,204	\$ 390,738,084
Feeder (DLC)										
Annual Capital Cost	\$ 20,112,229	\$ 30,400,270	\$ 4,480,553	\$ 9,145,569	\$ 2,866,197	\$ 24,578,906	\$ 23,684,903	\$ 8,442,816	\$ 4,299,277	\$ 127,812,719

Network-Related Expenses	0-5 lines/sq mi	6-100 lines/sq mi	100-200 lines/sq mi	200-450 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	2550-6000 lines/sq mi	6000-10000 lines/sq mi	>10000 lines/sq mi	Totals
Network Expenses	\$ 9,397,707	\$ 13,047,660	\$ 1,365,906	\$ 1,916,674	\$ 475,714	\$ 2,863,330	\$ 1,918,875	\$ 393,471	\$ 112,772	\$ 31,511,909
Direct expense	\$ 29,509,935	\$ 43,447,931	\$ 5,826,459	\$ 11,062,243	\$ 3,163,911	\$ 27,462,235	\$ 25,603,578	\$ 8,836,286	\$ 4,412,049	\$ 159,324,627
Investment	\$ 143,697,688	\$ 217,308,622	\$ 31,861,053	\$ 65,521,793	\$ 19,263,472	\$ 176,278,224	\$ 169,918,153	\$ 60,554,242	\$ 30,828,065	\$ 915,252,209
Support expenses	\$ 5,379,786	\$ 9,087,344	\$ 1,343,460	\$ 2,746,847	\$ 826,952	\$ 7,792,989	\$ 7,865,498	\$ 2,810,933	\$ 1,502,699	\$ 39,156,307
Subtotal, with misc spt	\$ 34,869,723	\$ 52,535,275	\$ 7,169,918	\$ 13,808,890	\$ 3,990,863	\$ 35,255,224	\$ 33,289,074	\$ 11,647,219	\$ 5,914,748	\$ 198,480,935
Total, with var overhead	\$ 38,518,254	\$ 57,998,944	\$ 7,915,590	\$ 15,245,015	\$ 4,405,913	\$ 38,921,767	\$ 38,729,057	\$ 12,858,530	\$ 6,529,882	\$ 219,122,952
with carrier-to-carrier	\$ 38,576,784	\$ 58,227,609	\$ 7,961,195	\$ 15,354,948	\$ 4,442,172	\$ 39,308,354	\$ 37,132,758	\$ 13,017,773	\$ 6,621,424	\$ 221,104,357
Feeder (non-DLC)										
Annual Capital Cost	\$ 1,991,888	\$ 463,363	\$ 301,781	\$ 2,800,327	\$ 1,496,144	\$ 18,613,744	\$ 22,953,238	\$ 11,485,318	\$ 9,394,452	\$ 89,500,052
Network Expenses	\$ 978,561	\$ 221,928	\$ 138,835	\$ 1,123,785	\$ 500,901	\$ 4,572,471	\$ 4,393,055	\$ 1,756,417	\$ 1,245,502	\$ 14,931,452
Direct expense	\$ 2,970,249	\$ 685,289	\$ 440,818	\$ 3,924,112	\$ 1,997,044	\$ 23,186,215	\$ 27,346,291	\$ 13,241,735	\$ 10,839,954	\$ 84,431,505
Investment	\$ 13,809,004	\$ 3,168,334	\$ 2,059,032	\$ 19,284,753	\$ 10,362,244	\$ 129,967,518	\$ 160,913,944	\$ 80,739,877	\$ 68,170,583	\$ 486,253,070
Support expenses	\$ 541,489	\$ 143,332	\$ 101,597	\$ 974,319	\$ 521,968	\$ 6,579,578	\$ 8,187,249	\$ 4,212,361	\$ 3,865,752	\$ 24,885,752
Subtotal, with misc spt	\$ 3,511,738	\$ 828,621	\$ 542,212	\$ 4,898,431	\$ 2,519,012	\$ 29,765,792	\$ 35,524,540	\$ 17,454,096	\$ 14,263,813	\$ 109,317,256
Total, with var overhead	\$ 3,876,959	\$ 914,798	\$ 598,603	\$ 5,407,867	\$ 2,780,990	\$ 32,861,435	\$ 39,239,029	\$ 19,289,322	\$ 15,747,250	\$ 120,886,251
with carrier-to-carrier	\$ 3,882,850	\$ 918,404	\$ 602,051	\$ 5,448,863	\$ 2,803,876	\$ 33,186,139	\$ 39,660,207	\$ 19,507,957	\$ 15,968,011	\$ 121,777,549
Feeder (all)										
Annual Capital Cost	\$ 22,103,917	\$ 30,863,634	\$ 4,782,334	\$ 11,945,895	\$ 4,184,341	\$ 43,192,850	\$ 46,638,139	\$ 19,928,133	\$ 13,893,729	\$ 197,312,771
Network Expenses	\$ 10,376,267	\$ 13,269,587	\$ 1,504,741	\$ 3,040,459	\$ 976,615	\$ 7,455,800	\$ 6,311,730	\$ 2,149,888	\$ 1,358,273	\$ 46,443,361
Direct expense	\$ 32,480,184	\$ 44,133,220	\$ 6,267,074	\$ 14,986,355	\$ 5,160,955	\$ 50,648,450	\$ 52,949,869	\$ 22,078,021	\$ 15,052,003	\$ 243,758,132
Investment	\$ 157,308,961	\$ 220,474,958	\$ 33,940,085	\$ 84,786,545	\$ 29,625,716	\$ 306,245,741	\$ 330,832,097	\$ 141,293,919	\$ 96,999,528	\$ 1,401,505,279
Support expenses	\$ 5,921,277	\$ 9,230,678	\$ 1,445,058	\$ 3,720,966	\$ 1,348,920	\$ 14,372,568	\$ 15,852,745	\$ 7,023,294	\$ 5,126,558	\$ 64,042,059
Subtotal, with misc spt	\$ 38,401,461	\$ 53,363,898	\$ 7,712,131	\$ 18,707,321	\$ 6,509,875	\$ 65,021,018	\$ 68,802,614	\$ 29,101,315	\$ 20,178,561	\$ 307,798,191
Total, with var overhead	\$ 42,395,213	\$ 58,913,742	\$ 8,514,192	\$ 20,652,882	\$ 7,188,902	\$ 71,783,202	\$ 75,958,066	\$ 32,127,852	\$ 22,277,131	\$ 339,809,203
with carrier-to-carrier	\$ 42,459,635	\$ 59,146,014	\$ 8,563,248	\$ 20,801,809	\$ 7,248,048	\$ 72,492,493	\$ 76,792,964	\$ 32,525,730	\$ 22,588,436	\$ 342,881,906
End Office Switching										
Annual Capital Cost	\$ 1,602,409	\$ 9,911,900	\$ 4,039,944	\$ 11,424,204	\$ 3,874,680	\$ 35,285,498	\$ 35,880,781	\$ 16,009,144	\$ 12,810,996	\$ 130,839,250
Network Expenses	\$ 467,925	\$ 2,612,909	\$ 1,033,421	\$ 2,866,618	\$ 959,682	\$ 8,828,379	\$ 9,217,562	\$ 4,241,757	\$ 3,354,894	\$ 33,583,147
Direct expense	\$ 2,070,334	\$ 12,524,809	\$ 5,073,065	\$ 14,291,022	\$ 4,834,362	\$ 44,113,877	\$ 45,098,344	\$ 20,250,901	\$ 16,165,893	\$ 164,422,407
Investment	\$ 10,908,386	\$ 66,931,635	\$ 27,197,793	\$ 76,876,970	\$ 25,974,770	\$ 236,478,615	\$ 240,744,108	\$ 107,447,145	\$ 85,402,834	\$ 877,780,236
Support expenses	\$ 377,431	\$ 2,619,824	\$ 1,169,743	\$ 3,548,322	\$ 1,263,558	\$ 12,518,243	\$ 13,502,064	\$ 6,442,084	\$ 5,505,870	\$ 46,948,919
Subtotal, with misc spt	\$ 2,447,765	\$ 15,144,433	\$ 6,242,808	\$ 17,839,344	\$ 6,097,921	\$ 58,632,120	\$ 58,600,408	\$ 26,692,865	\$ 21,671,563	\$ 211,369,328
Total, with var overhead	\$ 2,702,332	\$ 16,719,454	\$ 6,892,060	\$ 19,694,835	\$ 6,732,104	\$ 62,521,860	\$ 64,694,851	\$ 29,469,034	\$ 23,925,405	\$ 233,351,798
with carrier-to-carrier	\$ 2,706,438	\$ 16,785,372	\$ 6,931,768	\$ 19,836,653	\$ 6,787,507	\$ 63,139,640	\$ 65,405,932	\$ 29,833,984	\$ 24,260,817	\$ 235,461,804
Signaling										
Annual Capital Cost	\$ 393,012	\$ 978,284	\$ 373,465	\$ 1,100,032	\$ 383,453	\$ 3,569,572	\$ 3,708,909	\$ 1,602,060	\$ 1,135,922	\$ 13,244,710
Network Expenses	\$ 117,418	\$ 223,347	\$ 78,994	\$ 233,128	\$ 80,274	\$ 731,925	\$ 759,319	\$ 327,941	\$ 232,506	\$ 2,784,853
Direct expense	\$ 510,430	\$ 1,201,631	\$ 452,459	\$ 1,333,161	\$ 463,728	\$ 4,301,497	\$ 4,468,228	\$ 1,930,001	\$ 1,368,426	\$ 16,028,583
Investment	\$ 2,766,975	\$ 8,627,579	\$ 2,506,464	\$ 7,384,445	\$ 2,570,381	\$ 23,869,836	\$ 24,796,940	\$ 10,710,844	\$ 7,594,334	\$ 88,627,577
Support expenses	\$ 93,054	\$ 251,327	\$ 104,328	\$ 331,011	\$ 121,205	\$ 1,220,941	\$ 1,337,570	\$ 613,957	\$ 466,073	\$ 4,539,344
Subtotal, with misc spt	\$ 603,483	\$ 1,452,958	\$ 556,786	\$ 1,864,172	\$ 584,932	\$ 5,522,138	\$ 5,805,978	\$ 2,543,959	\$ 1,834,500	\$ 20,568,906
Total, with var overhead	\$ 686,246	\$ 1,804,086	\$ 614,692	\$ 1,837,246	\$ 645,785	\$ 6,098,440	\$ 6,409,799	\$ 2,808,530	\$ 2,025,288	\$ 22,708,073
with carrier-to-carrier	\$ 687,258	\$ 1,610,390	\$ 618,234	\$ 1,850,464	\$ 651,079	\$ 6,156,679	\$ 6,480,251	\$ 2,843,312	\$ 2,053,681	\$ 22,913,409
Dedicated Transport										
Annual Capital Cost	\$ 2,397,531	\$ 4,128,264	\$ 1,234,810	\$ 2,599,688	\$ 741,959	\$ 2,155,089	\$ 937,333	\$ 294,646	\$ 160,386	\$ 14,649,905
Network Expenses	\$ 584,514	\$ 1,047,008	\$ 318,918	\$ 683,550	\$ 197,936	\$ 648,710	\$ 321,008	\$ 107,763	\$ 61,371	\$ 3,970,776
Direct expense	\$ 2,982,045	\$ 5,175,270	\$ 1,553,728	\$ 3,283,238	\$ 939,895	\$ 2,803,799	\$ 1,258,341	\$ 402,609	\$ 221,757	\$ 18,620,681
Investment	\$ 17,172,881	\$ 29,584,990	\$ 8,845,094	\$ 19,817,341	\$ 5,306,882	\$ 15,460,282	\$ 6,730,338	\$ 2,116,722	\$ 1,152,569	\$ 104,972,096
Support expenses	\$ 543,640	\$ 1,082,433	\$ 358,257	\$ 815,198	\$ 245,861	\$ 795,637	\$ 376,737	\$ 128,075	\$ 75,528	\$ 4,421,183
Subtotal, with misc spt	\$ 3,525,685	\$ 6,257,703	\$ 1,911,985	\$ 4,098,434	\$ 1,185,556	\$ 3,599,438	\$ 1,635,077	\$ 530,863	\$ 297,286	\$ 23,041,844
Total, with var overhead	\$ 3,892,356	\$ 6,908,504	\$ 2,110,831	\$ 4,524,671	\$ 1,308,853	\$ 3,973,777	\$ 1,805,125	\$ 585,874	\$ 328,203	\$ 25,436,196
with carrier-to-carrier	\$ 3,896,271	\$ 6,935,741	\$ 2,122,993	\$ 4,557,298	\$ 1,319,625	\$ 4,013,042	\$ 1,824,966	\$ 593,130	\$ 332,805	\$ 25,668,219
Dedicated Transport Transmission										
Annual Capital Cost	\$ 447,300	\$ 1,617,703	\$ 592,320	\$ 1,596,398	\$ 525,982	\$ 4,283,720	\$ 4,343,788	\$ 2,175,311	\$ 2,271,255	\$ 17,853,757
Network Expenses	\$ 37,457	\$ 135,469	\$ 49,602	\$ 133,665	\$ 44,045	\$ 358,725	\$ 363,755	\$ 182,164	\$ 190,198	\$ 1,495,090
Direct expense	\$ 484,757	\$ 1,753,171	\$ 641,922	\$ 1,730,083	\$ 570,006	\$ 4,642,445	\$ 4,707,543	\$ 2,357,475	\$ 2,461,453	\$ 19,348,855
Investment	\$ 2,446,201	\$ 6,854,159	\$ 3,241,942	\$ 8,737,553	\$ 2,878,742	\$ 23,446,053	\$ 23,774,819	\$ 11,908,113	\$ 12,431,241	\$ 97,718,823
Support expenses	\$ 86,373	\$ 366,884	\$ 148,014	\$ 429,583	\$ 148,983	\$ 1,317,392	\$ 1,409,399	\$ 749,942	\$ 838,346	\$ 5,496,895
Subtotal, with misc spt	\$ 573,130	\$ 2,119,856	\$ 789,936	\$ 2,159,645	\$ 718,989	\$ 5,959,837	\$ 6,116,941	\$ 3,107,417	\$ 3,299,799	\$ 24,845,550
Total, with var overhead	\$ 632,736	\$ 2,340,321	\$ 872,069	\$ 2,384,248	\$ 793,784	\$ 6,579,860	\$ 6,753,103	\$ 3,430,588	\$ 3,642,978	\$ 27,429,487
with carrier-to-carrier	\$ 633,697	\$ 2,349,547	\$ 877,114	\$ 2,401,441	\$ 800,298	\$ 6,644,874	\$ 6,827,329	\$ 3,473,073	\$ 3,694,049	\$ 27,877,516
Direct Transport										
Annual Capital Cost	\$ 2,271,899	\$ 2,798,472	\$ 506,083	\$ 1,166,378	\$ 369,042	\$ 579,966	\$ 217,100	\$ 60,624	\$ 25,995	\$ 7,995,560
Network Expenses	\$ 546,573	\$ 691,405	\$ 129,180	\$ 298,900	\$ 95,195	\$ 173,238	\$ 74,615	\$ 22,086	\$ 9,914	\$ 2,041,105
Direct expense	\$ 2,818,472	\$ 3,489,877	\$ 635,263	\$ 1,465,279	\$ 464,237	\$ 753,204	\$ 291,715	\$ 82,710	\$ 35,908	\$ 10,036,685
Investment	\$ 18,271,611	\$ 20,034,015	\$ 3,626,244	\$ 8,349,231	\$ 2,636,837	\$ 4,161,500	\$ 1,559,224	\$ 435,665	\$ 186,616	\$ 57,263,145